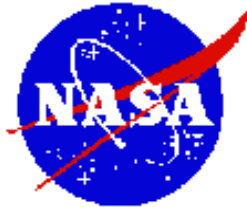


# **Storm Water Pollution Prevention Plan**

Virginia Pollutant Discharge Elimination System  
Permit #VA0024457

National Aeronautics and Space Administration  
Goddard Space Flight Center  
Wallops Flight Facility  
Wallops Island, Virginia



EPA ID #VA800010763

January 2001

# STORM WATER POLLUTION PREVENTION PLAN

National Aeronautics and Space Administration  
Goddard Space Flight Center  
Wallops Flight Facility  
Wallops Island, Virginia

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THIS REVISION SUPERSEDES ALL PREVIOUS EDITIONS OF THE WALLOPS  
FLIGHT FACILITY STORM WATER POLLUTION PREVENTION PLAN

**January 2001**

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**List of Acronyms**

<b>AST</b>	Aboveground Storage Tank
<b>DEQ</b>	(Virginia) Department of Environmental Quality
<b>DMR</b>	Discharge Monitoring Report
<b>EPA</b>	(United States) Environmental Protection Agency
<b>FOTW</b>	Federally Owned Treatment Works
<b>GSFC</b>	Goddard Space Flight Center
<b>ICP</b>	Integrated Contingency Plan
<b>NASA</b>	National Aeronautics and Space Administration
<b>QA/QC</b>	Quality Assurance/Quality Control
<b>SPCC</b>	Spill Prevention, Control, and Countermeasures
<b>SWCB</b>	(Virginia) State Water Control Board
<b>SWPPP</b>	Storm Water Pollution Prevention Plan
<b>UST</b>	Underground Storage Tank
<b>VAC</b>	Virginia Administrative Code
<b>VPDES</b>	Virginia Pollutant Discharge Elimination System
<b>WFF</b>	Wallops Flight Facility
<b>WWTP</b>	Waste Water Treatment Plant

## **1.0 PURPOSE**

The purpose of this Storm Water Pollution Prevention Plan (SWPPP) is to meet the requirements of the current Virginia Pollutant Discharge Elimination System (VPDES) General Permit for storm water discharges associated with light industrial activity (as referenced in the Virginia Administrative Code 9 VAC 25-31-120) #VA0024457, dated August 10, 1999. This document is intended to describe current storm water management and to reflect revisions to storm water management systems and the associated outfalls from the previous edition of the Storm Water Management Plan, dated August 1994, for the Wallops Flight Facility (WFF). Through the use of best management practices, comprehensive site compliance evaluations, and personnel training, WFF remains proactive in storm water pollution prevention.

This SWPPP should be a dynamic document that is revised as appropriate to reflect changes in WFF operations. The U. S. Environmental Protection Agency (EPA) multisector permit requires that the SWPPP is amended whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to waters of the United States. This SWPPP should also be amended if it proves to be ineffective in eliminating or minimizing pollutants. Also, the facility is required to inspect its sites, evaluate the accuracy and effectiveness of this SWPPP, and modify it as necessary.

### **1.1 Introduction**

The National Aeronautics and Space Administration (NASA) Goddard Space Flight Center's Wallops Flight Facility is located in Accomack County, Virginia, within the area known as the Delmarva Peninsula. The facility consists of three separate landmasses, in close proximity to each other, the Main Base, the Mainland, and Wallops Island, which total approximately 6,530 acres (2,643 hectares). Figure 1 depicts the location of the WFF. Figure 2 delineates the area of the three landmasses.

The Main Base is composed of approximately 2,230 acres (902.5 hectares). It is bordered on the east by extensive marshland, swales, and tidal creeks, which lead into the Chincoteague Bay and the Chincoteague Inlet. The Main Base is bordered on the north and west by an estuarine area known as Little Mosquito Creek. State Route 175 on the south and State Route 798 on the southeast border the remainder of the Main Base.

Wallops Island is approximately 7 miles (11.3 kilometers) long, 1/2 mile (0.8 kilometers) wide, and is surrounded by water. It is comprised of approximately 4,200 acres (1,700 hectares), including the marsh area. Chincoteague Inlet borders Wallops Island on the north and the Atlantic Ocean forms the eastern border. Marshland covers the entire western approach to Wallops Island. The marsh area is interlaced with small tidal creeks and is bisected by the Intracoastal Waterway.

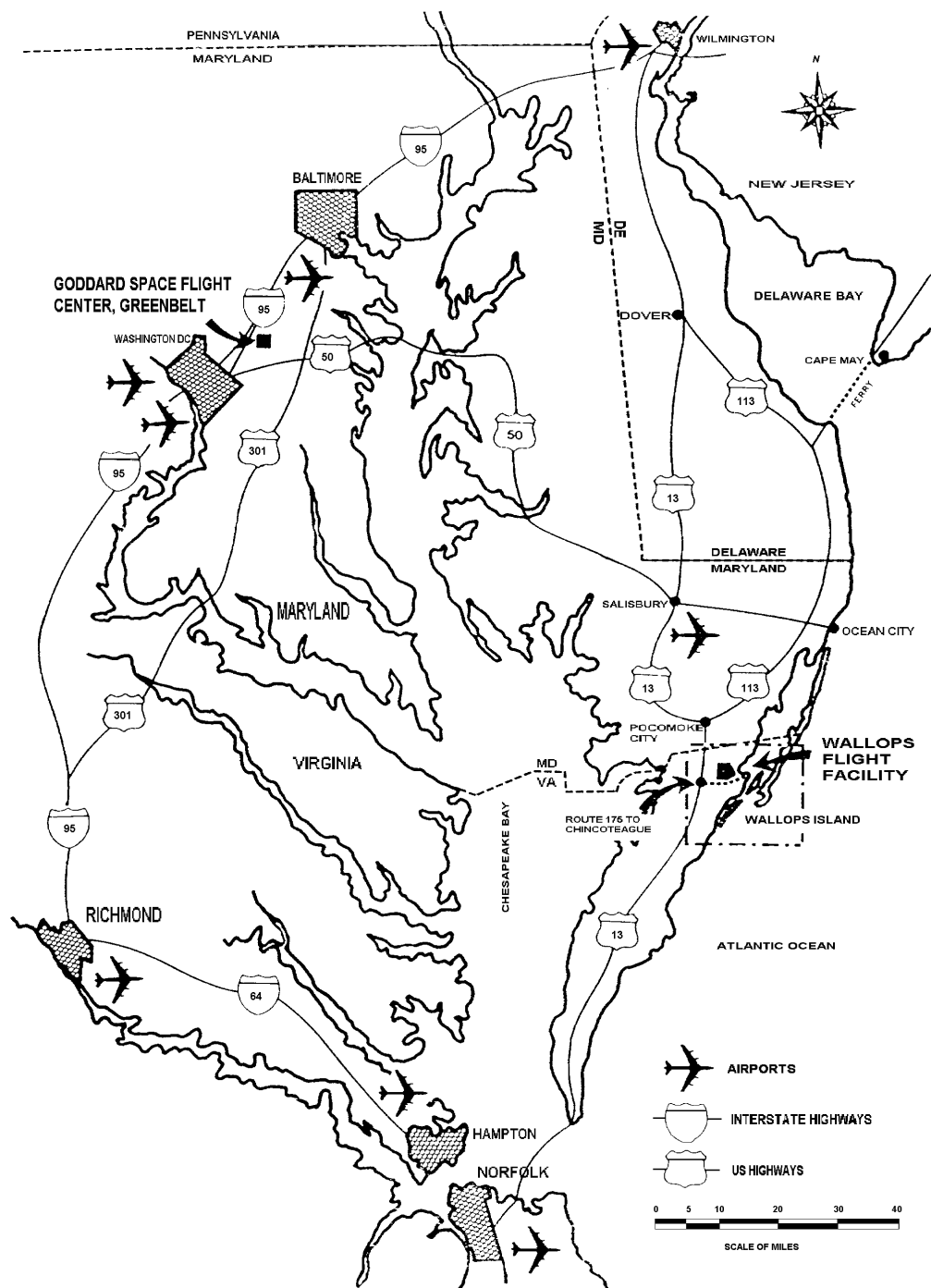


Figure 1  
Location of the Wallops Flight Facility

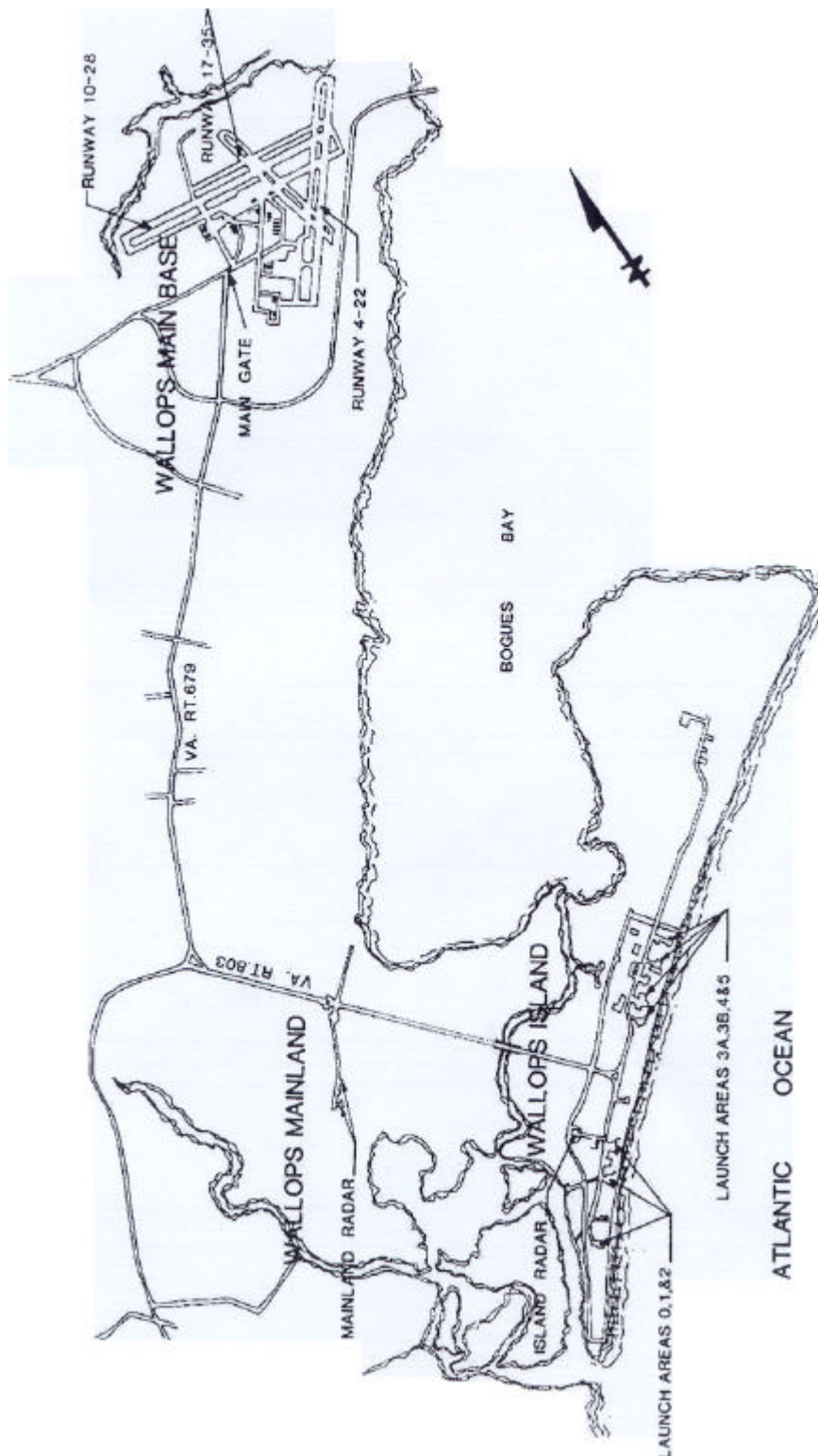


Figure 2  
Three Landmasses

The Mainland area is bordered by extensive marshland and swales to the east and by private lands, currently used for agricultural and livestock (poultry house) operations, to the south, west, and north. The Mainland covers approximately 100 acres (40.5 hectares).

## **1.2 Identification and Characteristics**

Storm water runoff at the Wallops Main Base is mostly controlled and conveyed through a piped drainage network (including the 2 intermediate outfalls 301 and 302) and discharged at 14 separate outfalls, 12 on the Main Base (Figure 3) and 2 on Wallops Island.

The Mainland portion of the facility does not generate storm water discharge associated with industrial activity as specified within regulatory guidance classifications. This portion of the facility does not expose industrial activity to precipitation, drain areas through percolation, produce sheet flows, or utilize concrete flumes. Therefore, matters concerning storm water runoff are not applicable for this area of the facility.

Wallops Main Base controlled storm water is discharged through outfall numbers 001 - 014, with the exception of outfalls 002 and 011 that are located on Wallops Island. Outfall 002 formerly drained the old sewage lagoons, which are now closed. Outfall 011 drains a series of industrial buildings and parking facilities on Wallops Island. These drainage areas are channeled to retention basins with sluice gates leading first to tidal marshland and tributaries and then to the bay area of Wallops Island. Due to its susceptibility to storm surges from the surrounding bay and ocean, the retention basins are also used as a method of flood control for Wallops Island.

The National Oceanic and Atmospheric Administration (NOAA), one of WFF's partners, operates a radar station (correlating Standardized Industrial Classification (SIC) code 4899) on the northeast corner of the facility. The NOAA is remote from any activity conducted by WFF. Five outfalls channel storm water from the NOAA facility. However, based upon the NOAA's SIC code, radar stations are not considered industrial activity and therefore do not produce discharges associated with industrial activity. The outfalls are labeled on Figure 3 as NOAA 1 through NOAA 4.

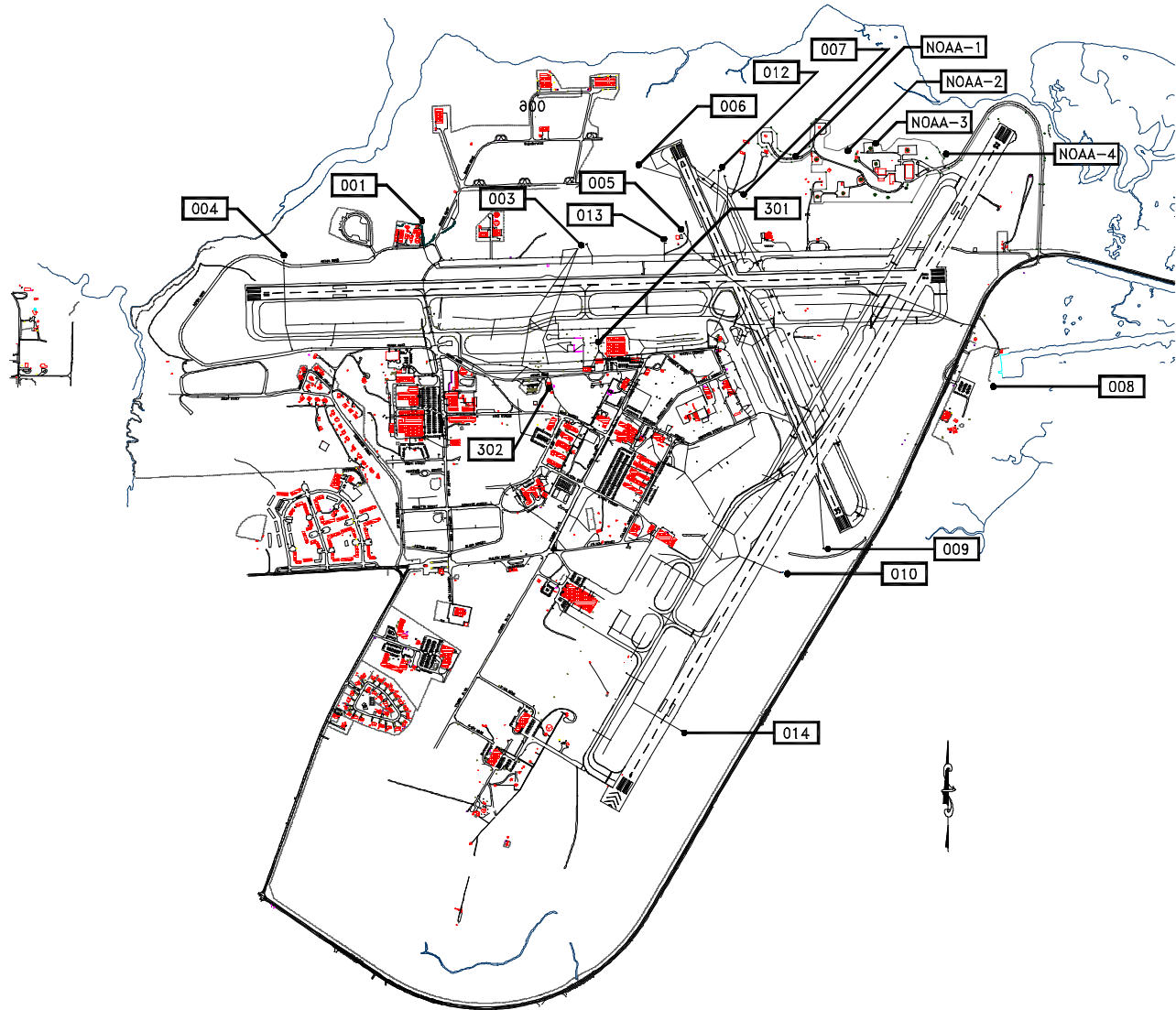


Figure 3  
Main Base Outfall Locations

Table 1 lists the following: outfall, drainage area, and the correlating SIC code for the associated industrial activities conducted at WFF.

<b>TABLE 1 SIC CODE CLASSIFICATION AND ASSOCIATED OUTFALLS</b>			
<b>Code #</b>	<b>Description of Code</b>	<b>Outfall</b>	<b>Drainage Area</b>
<b>3761</b>	Guided Space Vehicle Manufacturing	004	Bldg. F-10 Space Vehicle Parts Manufacturing
		011	Wallops Island Industrial Activity
<b>3812</b>	Search, Detection, Navigation, Guidance, Aeronautical Systems	004	Bldg. F-10 Space Vehicle Parts Manufacturing
<b>4212</b>	Hazardous Waste Collection	003	Accumulation Areas
<b>4581</b>	Other Support Airport Services	005 - 009	Runways
<b>4581</b>	Aircraft Servicing and Repairing	301	Airport Wash Rack
		302	D-37 Fuel Farm
<b>4952</b>	Sewage Treatment Facilities	001	Sewage Treatment Plant, FOTW
<b>7521</b>	Automobile Parking Lots	001 - 014	Automobile Parking Areas
<b>7542</b>	Car Washes	003, 011	Bldg. B-129 Fire Truck Washing
<b>9661</b>	Space Research and Technology	001 - 014	Applicable to all facility activity

### 1.3 Inventory of Exposed Materials

An inventory of exposed materials was developed from data collected through field surveys, inspections, and personnel interviews. Table 2 summarizes materials exposed to precipitation by location. Buildings B-129, D-1, F-10, and N-159 house chemicals in rooms with floor drains that are connected to the storm water management system. The Environmental Office's Material Safety Data Sheets (MSDS) page of the NASA Wallops Flight Facility web site, <http://www.wff.nasa.gov/~code205/msdspg.htm>, contains current chemical inventories, along with links to the corresponding MSDS's, for each building of the facility.

<b>TABLE 2 INVENTORY OF MATERIALS EXPOSED TO PRECIPITATION</b>	
<b>Location</b>	<b>Materials</b>
B-29, B-30, N-168, U-81	Empty Drum Storage
B-31, E-134, F-16, U-15, U-25, W-15	Drums of Used Oil
D-37	Drums of Used JP-5
W-40	Drums of JP-10

### 1.4 Sampling Data

Scheduled samplings of storm water drainage areas are performed to meet VPDES water quality monitoring requirements. The VPDES permit, dated August 10, 1999, specifies the constituents to sample and sampling frequency for outfalls 001, 003, and 301. Analysis is conducted in accordance with EPA analytical laboratory test methods. Sampling and analysis undergo quality control and quality assurance (QA/QC) review to ensure validity

of analytical results. Sample results are reported in the monthly Discharge Monitoring Report (DMR) at the frequency specified by the VPDES permit. A description of each discharge and the receiving stream is presented in Table 3. The DEQ DMRs are presented in Appendix A.

<b>TABLE 3</b>		
<b>OUTFALL DESCRIPTIONS – VPDES PERMIT #VA0024457</b>		
<b>Outfall</b>	<b>Description</b>	<b>Receiving Stream</b>
001	FOTW receives sanitary wastes, effluent from cooling towers (N-159), and waste liquids from the Circuit Board Etching Shop (F-8), the Antenna Etching Operation (F-8), and the Photo Processing Shop (E-2).	Little Mosquito Creek
003	Cooling water (F-10), water from oil/water separators at fuel farm (D-37) and aircraft wash rack (near D-4), and storm water runoff.	Little Mosquito Creek
301	Storm water from oil/water separator at aircraft wash rack (near D-4).	Little Mosquito Creek

#### **1.4.1 Record of Sampling History**

Initial storm water sampling was performed to meet requirements for the original Application for Permit to Discharge Storm Water Associated with Industrial Activity and submitted to the Virginia Department of Environmental Quality (DEQ) State Water Control Board (SWCB) on October 1, 1992. Eleven outfalls are associated with industrial activity. Outfalls 004, 005, 007, 010, and 011 were selected for sampling based on representation of associated industrial activity. Outfalls 006, 008, 009, 012, 013, and 014 were considered "substantially identical" to outfall 005 by definition. This definition was accepted and approved by the SWCB.

Outfalls 001, 003, and 301 were claimed as "exempt" from the Application for Permit to Discharge Storm Water Associated with Industrial Activity and were permitted under VPDES permit #VA0024457. Outfall 001 receives effluent from the wastewater treatment plant located on the Main Base with an additional portion of its volume received from storm water discharges. Outfall 003 receives storm water discharges from the airport wash rack, D-37 fuel farm, and airport runways. Intermediate outfalls 301 (aircraft wash rack effluent) and 302 (D-37 fuel farm oil water separator effluent) have historically been sampled for VPDES Permit compliance. Table 4 represents the summary of the sampling from 1995 to 1999.

<b>TABLE 4</b>								
<b>VPDES STORM WATER COMPLIANCE SAMPLING SUMMARY, 1995 – 1999</b>								
Parameter	Outfall 001		Outfall 003		Outfall 301		Outfall 302	
	Annual Average	Highest Value	Annual Average	Highest Value	Annual Average	Highest Value	Annual Average	Highest Value
pH	6.9	8.3	8	8.2	NA	NA	NA	NA
TSS, (mg/L)	7.31	26.4	10.4	37	NA	NA	NA	NA
TKN, (mg/L)	0.78	3.9	0.25	ND	NA	NA	NA	NA
TPH, (mg/L)	NA	NA	0.7	2	12	32.5	2.9	9.7
mg/L – milligrams per liter			ND- Not determined			NA- Not applicable		

Outfall 002 was located on Wallops Island and served the sewage lagoons. The sewage lagoons were replaced by the Wallops force main system, which transfers sewage from Wallops Island to the Wallops Main Base treatment plant. This connection was completed and began operations on January 27, 1993. The lagoons and outfall 002 were closed after the force main system was completed.

The initial storm water sampling event was held on December 10, 1992. The duration of the event was 48.8 hours with a total recorded precipitation of 1.48 inches (3.76 centimeters). The storm water samples were collected during the first 3 hours of the event. They were analyzed for the following constituents:

- Chemical Oxygen Demand/Total Kjeldahl Nitrogen;
- Biological Oxygen Demand (BOD);
- Total Suspended Solids (TSS);
- Fecal Coliform;
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX);
- Oil and Grease;
- PCB/Pesticides;
- Total Phenols;
- Cyanide; and
- Metals (aluminum, barium, cadmium, chromium, copper, iron, lead, magnesium, zinc).

Sampling results indicated no significant discharge of pollutants. A high fecal coliform count was detected at outfall 004. Field sampling staff determined that this finding was attributed to the presence of indigenous mammals, since tracks and animal wastes were noted throughout the area during outfall surveillance.

In 1995, a scheduled storm water sampling event resulted in a detection report to the DEQ SWCB of 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane (DDT); 1,1-dichloro-2,2-bis(p-chlorophenyl)ethane (DDD); and 1,1-dichloro-2,2-bis(p-chlorophenyl)ethane (DDE) for outfall 003. The simultaneous appearance of DDT, DDD, and DDE suggested that the principle chemical that may have been used at the facility up to the time of its ban in 1972 had broken down, over time, into its decomposition derivatives of technical DDT. The

1998 composite sampling was executed as a “once-per-permit-term” sampling event as specified by VPDES permit requirements. The 1998 analyses results indicated that the chemicals were not present in detection levels that exceeded regulatory limits. Facility interviews and investigations performed in 1998 by the Environmental Office indicated that DDT had not been stored or used at the facility since its ban in 1972. No further investigation was required as an outcome of this finding.

The DEQ, after reviewing the analytical results and evaluating the facility's industrial activities, concluded that the facility was not required to have a General Storm Water Permit in addition to the VPDES permit. Based on this evaluation, outfall sampling beyond the parameters and locations specified in the VPDES permit is not required.

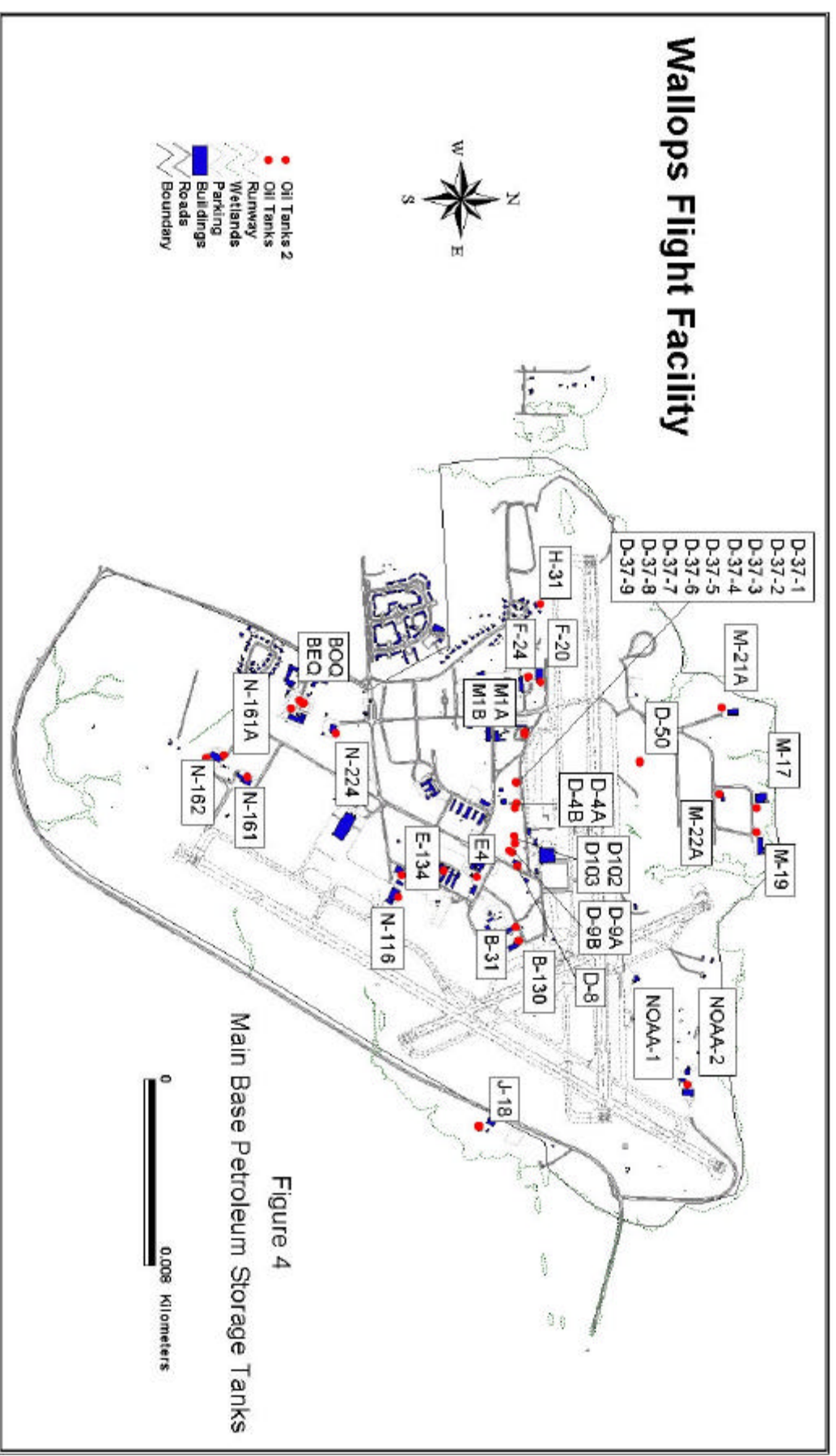
### **1.5 Potential Pollutant Sources Associated with Industrial Activity**

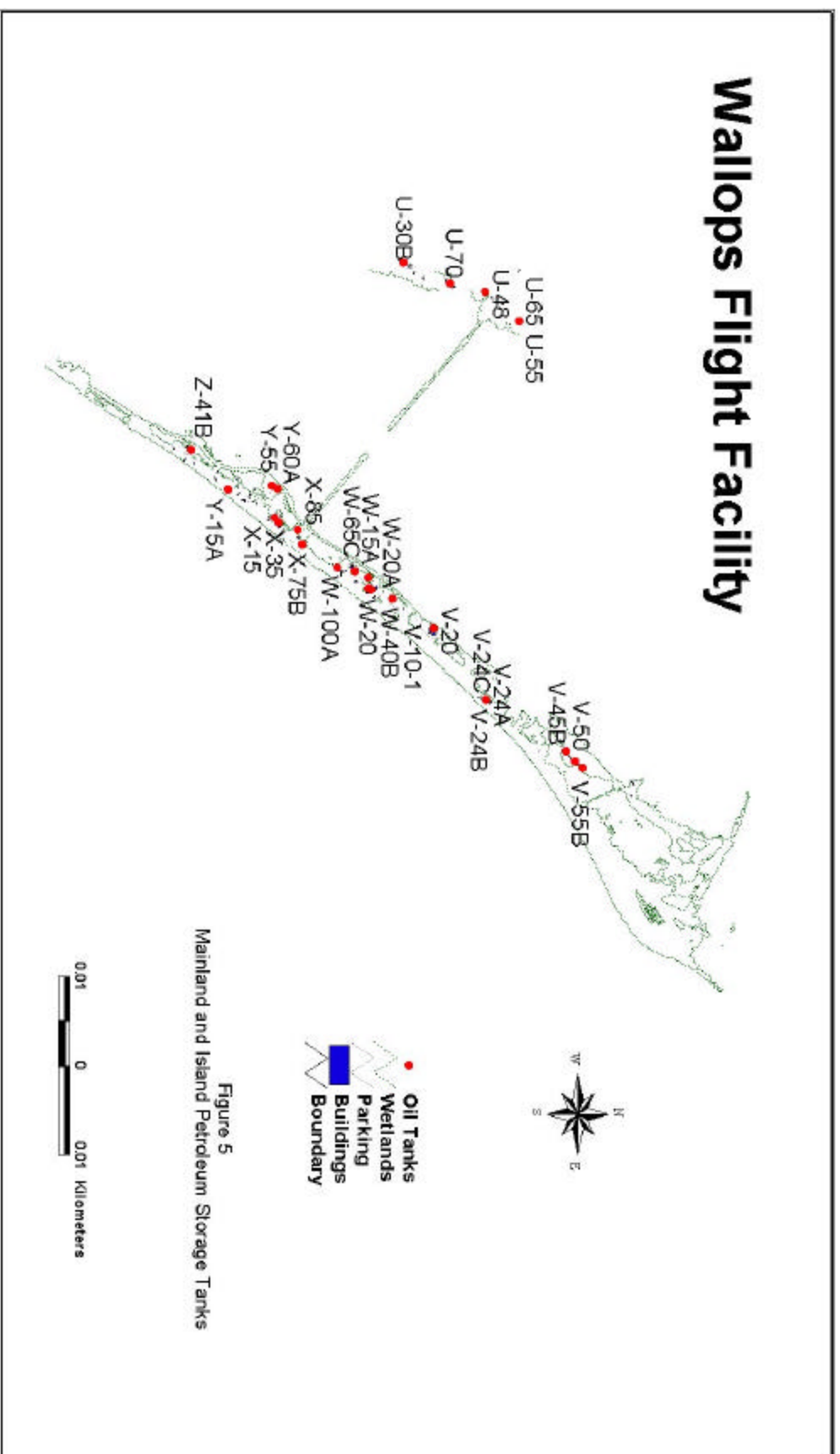
Potential pollutants entering the storm water conveyance system are associated with airport operations and space vehicle parts manufacturing. These operations are permanent functions at the facility. Considerably fewer than 50,000 flights occur per year at the facility airport with 8,106 flights recorded in Fiscal Year 1999 (October 1, 1998, through September 30, 1999). No aircraft de-icing is conducted at the facility.

#### **1.5.1 Petroleum Storage**

Petroleum storage tanks at the facility contain fuels associated primarily with facility heating and airport activities. Figures 4 and 5 illustrate locations of storage tanks on the Main Base as well as on the Mainland and Island. The Integrated Contingency Plan (ICP) is an EPA mandated document, which details a facility's preparedness and responses to emergencies particularly to hazardous waste and fuel oil spills. A list of storage tanks is included in the current ICP. This storage tank list indicates tank contents, volume, location, and spill risk analysis. The ICP has been drafted for WFF in order to combine Spill Prevention, Control, and Countermeasures (SPCC) and Hazardous Waste Contingency plans. The ICP is in compliance with 9 VAC 25-91-10 Aboveground Storage Tank (AST) Pollution Prevention regulations.

All AST's are registered with the DEQ per 9 VAC 25-91 Facility and Aboveground Storage Tank Registration regulations. Due to the number and location of tanks, individual flow directions and rates are not available. However, WFF topography is generally flat with very porous soils, and therefore, most major spills are likely to flow equidistant around the source. To reduce the potential of fuel release into storm water conveyances, all AST's are surrounded by dikes constructed to contain greater than 125 percent of the maximum tank capacity for each tank. Tank dikes are inspected periodically and emptied of debris or precipitation as needed.





Trained NASA personnel and contractors monitor fueling to ensure that no fuel releases occur. Inventory control is practiced per Virginia Statutory Authority §62.1-44.34:15.1 and 9 VAC 25-91. In addition, all personnel involved in fueling operations attend a training session every 3 years on fueling procedures and pollution prevention practices. Portable tanks brought on site for specific projects are required to have secondary containment; are to be registered with the DEQ when capacity is over 660 gallons (2,500 liters); and are to be managed as outlined within contractual agreements when located on the WFF property.

Airport structures at the facility include fueling stations, wash rack facilities, runways, and maintenance hangers. The aviation fueling station consists of five 20,000 gallon (75,708 liter) underground storage tanks (UST) containing Jet Propulsion Fuel-5 (JP-5); two 10,000 gallon (38,754 liter) UST's containing Jet Propulsion-Thermally Stable (JPTS) fuel; one 10,000 gallon (38,754 liter) UST containing fuel that does not meet specifications as JPTS (Off-Spec); and one 12,000 gallon (45,425 liter) UST for spill containment. Off-Spec fuel is used alternately for JP-5 when the fuel meets specifications as JP-5. The UST's for aviation fuel are contained in one secured tank farm area and are equipped with comprehensive and appropriate leak detection, spill overfill and corrosion protection, interstitial monitoring, and a series of groundwater monitoring wells. Fuel is transferred to aircraft via fuel tank trucks owned and operated by WFF. Trained personnel monitor fuel transfers. Storm water catch basins at the fuel tank farm are equipped with oil/water separators with conveyances routed to a VPDES permitted outfall.

The facility maintains a fueling station for government owned passenger and service vehicles. The fueling station consists of one 10,000 gallon (38,754 liter) UST containing gasoline and one 10,000 gallon (38,754 liter) UST containing diesel fuel. These UST's are equipped with appropriate leak detection, spill overfill and corrosion protection, interstitial monitoring, and a series of soil vapor monitoring wells. Storm water from this area drains westerly, overland, to a local drainage ditch and, eventually, to non-permitted outfall 004.

Wash rack facilities at WFF are used for the cleaning of NASA aircraft. Catch basins for the wash rack are equipped with an oil/water separator. The oil/water separator is outfitted with a sampling port and is sampled in accordance with the VPDES permit requirements. During aircraft washing operations, a diversion valve located at the wash rack conveyance is utilized to divert wash and rinse waters to the Wastewater Treatment Plant (WWTP). When the wash rack is not in use, the storm water drainage is directed to intermediate outfall 301 and terminates at VPDES permitted outfall 003. Mobile aircraft fueling vehicles are regularly parked within an area adjacent to the wash rack. This area also drains to the oil/water separator. The mobile units are inspected daily by the Logistics Management Division for containment integrity and proper mechanical function.

The oil/water separator serving the fuel tank farm was permitted as intermediate outfall 302. However, the DEQ no longer requires this intermediate outfall to be sampled. This permit change was based on 5 years of sampling data for which no significant contamination was reported. Storm water from the fuel farm discharges from the

permitted outfall 003. Both the wash rack and the fuel tank farm oil/water separators are inspected monthly and emptied when necessary. The Facilities Management Branch maintains inspection records for these separators.

The ICP must identify and address the response to a realistic Worst Case Scenario (as defined by 9 VAC 25-91-170.11). It was theorized that the worst case may involve the rupture of either the fuel hose or tank of an aircraft fueling tanker while it is on the apron of the tarmac. The largest tanker has a capacity of 6,000 gallons (20,760 liters) and a fueling rate of 100 gallons per minute (gpm) or 346 liters per minute (lpm). At regular, grid intervals, storm water inlets are inlaid in the apron of the runway. The inlets are interconnected by the storm water piping and drain to outfalls around the runway. Many of these outfalls lead to bodies of surface water. Therefore, if a tanker were to rupture on the apron, a potential release of 6,000 gallons (20,760 liters) of fuel oil could enter the surface waters of the Commonwealth (see Figure 3). Aircraft fueling operations occur at two locations on the facility: the east ramp of Hangar D-1 and the east ramp of Hangar N-159, with 25 percent of the fueling occurring at Hangar D-1 and 75 percent occurring at Hangar N-159.

In order to support this theory, the Environmental Office conducted a simulated spill exercise on the runway apron east of Hangar N-159 on January 12, 2000. A rain event had occurred from January 9 through 10, 2000, with 0.18 inches (0.46 centimeters) falling on January 9<sup>th</sup> and 0.35 inches (0.89 centimeters) falling on January 10<sup>th</sup>, for a total of 0.53 inches (1.35 centimeters). Meteorological conditions on the day of the experiment were clear skies, southerly winds at approximately 5 to 10 knots (9.26 to 18.52 kilometers/ hour), temperature 50° F (10° C), with damp surface soils. At 1308 hours, the Wallops Main Base Fire Department, in cooperation with the Environmental Office, began to release 7,000 gallons (26,500 liters) of water dyed with 2 ounces of an EPA approved, biodegradable red tracer dye (Rhodamine WT, CJK Colors, 3001 North Graham Street, Charlotte, North Carolina 28233), onto the tarmac. Flow terminated at 1324 hours yielding a gravity-fed flow rate of approximately 437.5 gpm (1,656 lpm). Water entered the storm drain inlets and was directed through the storm ditch culvert off the southeast corner of the tarmac. Most of the volume pooled in either the 180 foot (55 meter), vegetated, dry ditch or in the sections of the drain pipe. Approximately 500 gallons (1,893 liters) or 7 percent of the water reached outfall 014 and ponded in the vegetation there. None of the release reached surface waters. Therefore, it was concluded, that storm water conveyances would be most affected by a spill incident on the airport tarmac. It was also gauged that a worst case spill would not reach the outer most boundaries of the facility property for a period of 2 hours or greater. In conclusion, if a spill incident occurred on the airport tarmac under similar weather conditions; containment, collection, and recovery operations could be implemented within a reasonable response time. Under these circumstances, the likelihood of a spill impacting state waters would be diminished or eliminated.

### **1.5.2 Other Potential Pollutant Sources**

Other potential pollutant sources at the WFF consist of the aircraft runways; rocket motor storage areas; paint spray, sandblasting grit, and drum storage locations; previous sites of contamination; and hazardous waste satellite accumulation areas. Several previous sites of contamination, or Areas of Concern, exist at the facility and are scheduled for, or undergoing, remediation. These Areas of Concern at the WFF result from past practices and activities and are described later in the text.

The facility utilizes three runways for aircraft flights (totaling less than 10,000 per year). The majority of the flights are for aeronautical or airborne earth science research. Runways are designated by number (10-28, 17-35, and 4-22). Storm water conveyances are located at intervals around the runways. Potential pollutants resulting from aircraft operations include benzene, toluene, ethylbenzene, xylene, and surfactants. Grass buffer strips are maintained between the runway surface and storm water basins. Additionally, runways are inspected daily for dirt and other particulate matter and vacuumed when needed. By utilizing this combination of practices, WFF reduces sediment and pollutant loading into the storm water drainage system.

Space vehicle parts manufacturing is conducted for rocket launch activities at the WFF and other off-site locations. Manufacturing facilities include Building F-10 on the Main Base and Building X-30 on Wallops Island. Activities related to these buildings that are subject to storm water runoff include temporary outside storage of rocket components, and outdoor spray painting and sand blasting of manufactured rocket components. Building F-10 contains the machine shop, electronics assembly shop, and related facilities. Prior to machining, raw materials for metalworking are routinely stored outside. Potential pollutant sources resulting from this storage include aluminum, iron, and magnesium. Permanent storage of finished components is under covered structures. Building X-30 on Wallops Island is a paint shop utilized for sandblasting and painting of manufactured rocket components. These activities have often occurred outside the roofed facility due to the size of the component and storage considerations. A canvas tarp enclosure was constructed surrounding the outdoor work area to contain the majority of sandblasting and painting residues. These residues are then collected and stored within Building X-115. To determine the presence of potential pollutants from the outdoor activity, periodic analytical sampling is conducted on the spent sandblasting grit and paint residue mixture. Analytes tested for include: lead, chromium, cadmium, iron, aluminum, barium, copper, and zinc. To date, all analytical results have been below EPA Maximum Concentration levels for the Toxicity Characteristic Leaching Procedure (TCLP), as defined by the Federal Code of Regulations in 40 CFR 261.24.

Most plant operation and maintenance activities, such as vehicle maintenance, electrical services, heating and cooling services, painting, and wood working, are housed in Building F-16. Operations are conducted inside, but heavy equipment is parked outside near the vehicle maintenance garage. Potential pollutants from parked equipment include gasoline, diesel, hydraulic and lubricating fluids, coolants, and various heavy metals. The garage stocks clay, vermiculite, and spill response kits for containing small leaks and spills.

One drum storage location at the facility is exposed to storm water. Approximately eight to ten 55-gallon (208 liter) drums of hydraulic oil are stored outside Building N-167, not under cover. The hydraulic oil is stored adjacent to the building and is used in radar tracking equipment.

In addition to the drum storage site described above, Table 5 lists the various accumulation areas for hazardous waste storage at the WFF. These areas are under roofs and are not exposed to storm water. Moreover, they are inspected quarterly by the Environmental Office and annually by the DEQ Waste Division. Less than one 55-gallon (208.175 liter) drum of any hazardous waste or 1 quart (0.95 liters) of an acutely hazardous waste, P or U listed (40 CFR 261.33), may be stored at any of the satellite accumulation areas. An unlimited amount of waste may be stored at the Less Than 90-Day Accumulation Area. Prior to the 90<sup>th</sup> day, contractors arrange for appropriate off-site disposal.

**TABLE 5**  
**THE WALLOPS FLIGHT FACILITY WASTE ACCUMULATION AND STORAGE AREAS**

**WFF MAIN BASE**  
EPA ID #VA8800010763

<u>BUILDING</u>	<u>DESCRIPTION</u>	<u>HAZARDOUS WASTE</u>
A-41	Mobile Radar Group.....	Oils/Solvents
<b>B-29</b>	<b>&lt; 90-Day Accumulation Area .....</b>	<b>Storage Area</b>
D-8	Boiler House .....	Solvents/Oils/Flammables
E-2	Photographic Accumulation Area .....	Recovered Silver
F-8	Printed Circuit Board Laboratory.....	Acidic/Alkaline Substances
F-10	Machine Shop.....	Oils/Cutting Fluids/Solvents
F-10	Guidance, Navigation, and Control Lab .....	Flammables
F-16	Vehicle Maintenance.....	Oils/Batteries/Solvents
F-16	Air Conditioning Shop .....	Batteries/Oils
F-16	Paint Shop .....	Paint Related Materials
F-160	Chemistry Laboratory.....	Oil/Solvents/Reagents
M-15	Rocket Motor Assembly/Storage .....	Flammables/Solvents
N-159	Orbital Science Branch .....	Fuels/Oils/Solvents/Batteries
N-159	Aircraft Maintenance .....	Solvents/Oils/Fuels
N-168	Advanced Data Acquisition System .....	Oils/Solvents
<b>N-223</b>	<b>&lt; 90-Day Accumulation Area .....</b>	<b>Storage Area</b>
NOAA	Command Data Acquisition .....	Oils/Thinner

**WALLOPS ISLAND/MAINLAND**

EPA ID# VA7800020888

<u>BUILDING</u>	<u>DESCRIPTION</u>	<u>HAZARDOUS WASTE</u>
U-25/U-30	SPANDAR Radar Operations .....	Oils/Solvents
U-70	AN/FPQ-6 Radar Tracking System .....	Flammable Liquids/Oils
<b>U-81</b>	<b>&lt; 90-Day Accumulation Area .....</b>	<b>Storage Area</b>
V-10/V-20	Naval Operations .....	Solvents/Paints/Oils/Flammables
W-15/W-40	Range Ground Support (Navy) .....	Oils/Fuels
W-20/W-65	Range Ground Support (NASA) .....	Oils/Fuels
X-30	Paint Shop .....	Paint Related Materials
V-24	Naval Operations .....	Oils/Batteries/Antifreeze
OB/OD	RCRA Part B TSDF (Interim Status) .....	Rocket Fuel/Motors

Several previous sites of contamination, or Areas of Concern, exist at the facility and are scheduled for, or undergoing, remediation. These Areas of Concern at the WFF result from past practices and activities and are described in Table 6 below.

<b>TABLE 6</b>		
<b>AREAS OF CONCERN AT WALLOPS FLIGHT FACILITY</b>		
<b>Site</b>	<b>Contaminant</b>	<b>Status</b>
Fire Training Area, North of Runway 10-28	Soil/Sediment: TPH GW: VOC	Investigation Phase
M-15 Photographic Tank	Soil/Sediment: Metals	Investigation Phase
N-161C Transformer Pad	Soil/Sediment: PCB	Remediation Phase
Old Aviation Fuel Tank Farm (Old AFTF) Bldg E-10	Soil/Sediment: TPH, VOC GW: TPH	Remediation Phase
Scrapyard Area, N-223	Soil/Sediment: PCB GW: No Data Available	Investigation Phase
Site 1 – Old Wastewater Treatment Plant	Soil/Sediment: No Data	Investigation Phase
Site 2 – Old Maintenance Facility, E-52	Soil/Sediment: TPH	Site Closed – No Further Action Required
Site 3 – Two 600,000 gallon USTs, A-46A and A-46B	Soil/Sediment: Suspected TPH	Site Closed, 1960's; Investigation reopened 1990's
Site 4 – Debris Pile, North End of Wallops Island	Soil/Sediment: TPH, VOC, PCB	Site Closed – No Further Action Required
Site 5 – Paint Stain, X-30	Soil/Sediment: Metals, PAH, PCB, Pesticides GW: Arsenic, Iron	Investigation Phase
Site 6 – Former Island Fueling System	Soil/Sediment: TPH GW: VOC	Site Closed – No Further Action Required

**WALLOPS ISLAND/MAINLAND**

EPA ID# VA7800020888

<u>BUILDING</u>	<u>DESCRIPTION</u>	<u>HAZARDOUS WASTE</u>
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W-20/W-65	Range Ground Support (NASA) .....	Oils/Fuels
X-30	Paint Shop .....	Paint Related Materials
V-24	Naval Operations .....	Oils/Batteries/Antifreeze
OB/OD	RCRA Part B TSDF (Interim Status) .....	Rocket Fuel/Motors

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Site 4 – Debris Pile, North End of Wallops Island	Soil/Sediment: TPH, VOC, PCB	Site Closed – No Further Action Required
Site 5 – Paint Stain, X-30	Soil/Sediment: Metals, PAH, PCB, Pesticides GW: Arsenic, Iron	Investigation Phase
Site 6 – Former Island Fueling System	Soil/Sediment: TPH GW: VOC	Site Closed – No Further Action Required

<b>TABLE 6</b> <b>AREAS OF CONCERN AT WALLOPS FLIGHT FACILITY</b>		
<b>Site</b>	<b>Contaminant</b>	<b>Status</b>
Site 7 – PCB Stained Transformer Pads – D49A, E105, E106	Concrete: PCB GW: Not Applicable	Remediation Phase
Site 8 – N-134 USTs	Soil/Sediment: TPH GW: VOC	Site Closed – No Further Action Required
Site 9 – Abandoned Drum Field, Along Runway 17-35	Soil/Sediment: Metals, PAH, PCB, Pesticides GW: Metals, PAH, PCB, Pesticides	Investigation Phase
Site 10 - N-168 ADAS Radar Antenna	Soil/Sediment: Hydraulic Fluid	Investigation Phase
Site 11 - Transformer Storage Areas, M3, M4, V-30	Soil/Sediment: PCB	Site Closed – No Further Action Required
Site 12 – Former Wind Tunnel, Near Building X-15	Soil/Sediment: Metals, PAH, PCB, Pesticides GW: Carbazole, Arsenic, Iron	Investigation Phase
Site 13 – Boat Basin Area	Soil/Sediment: UXO	Investigation Phase
Site 14 - Debris Piles, North of Runway 10-28	Soil/Sediment: Metals, VOC, SVOC, PCB, Pesticides GW: PAH, Metals	Investigation Phase
Site 15 - Debris Piles, North of Runway 10-28	Soil/Sediment: Diesel fuel, asbestos, pesticides, styrene GW: PAH, Metals	Investigation Phase
Site 16 – Waste Oil Dump, End of Runway 17-35	Soil/Sediment: Metals, SVOC GW: PAH	Investigation Phase
<b><u>Abbreviations</u></b>		
Polyaromatic Hydrocarbons (PAH)	Total Petroleum Hydrocarbons (TPH)	
Polychlorinated Biphenyls (PCB)	Unexploded Ordnance (UXO)	
Semi-volatile Organic Carbons (SVOC)	Volatile Organic Carbons (VOC)	

There are three significant Areas of Concern at the WFF: the Fire Training Area, N-222 Scrapyard, and the Old Aviation Fuel Tank Farm (AFTF). These areas are being addressed as part of a voluntary remedial investigation in cooperation with EPA Region III and DEQ. Debris removal has begun at the Fire Training Area. Limited surface soils at the Fire Training Area were removed, diminishing potential for contaminated runoff. The scrapyard, located at Building N-222, is currently undergoing a remedial investigation/feasibility study (RI/FS) due to the polychlorinated biphenyls (PCB) contamination at the site. Storm water runoff from the scrapyard would not discharge to surface waters except under 100-year flood conditions. A Corrective Action Plan (CAP) for the scrapyard has been proposed and is in the approval process.

The Old AFTF is a release site of aviation, gasoline, and jet fuels and is undergoing remediation using multiple technologies. In 1992, contaminated surface soils at the site

were removed and the excavations were backfilled with clean soil. These measures minimized contamination from runoff. Contaminated subsurface soils remaining at the site are being remediated by soil vapor extraction combined with subsequent activated carbon filtration to eliminate pollutants entering the atmosphere. Groundwater contamination is being addressed using pump and treat technologies to eliminate pollutants.

On October 27, 1998, a Lear 45 jet crashed at the WFF while flight-testing. One of the wing tanks ruptured, spilling an estimated 500 gallons (1,900 liters) of JP-5 fuel, which infiltrated the surrounding soil. Approximately 500 cubic yards (380 cubic meters) of contaminated soil were removed and stockpiled near Building B-29. In May 1999, DEQ approved a CAP that allowed the WFF to remediate the contaminated soil by land farming. A land farm was established, adjacent to the wastewater treatment plant, in September 1999. Treatment is expected to take up to 12 months and is accomplished by placing a uniform thickness of soil on a liner, adding nutrients and fertilizers, and mixing at regular intervals (at least monthly) to enhance aeration. Storm water runoff from this area is controlled through a leachate collection system and sediment fencing prior to draining to VPDES permitted outfall 003. Analytical results for storm water samples collected at outfall 003, November 2, 1999, revealed that sampling parameters remain in compliance.

There are 14 miscellaneous minor Areas of Concern at the WFF, which are in the final stages of RI/FS. Contaminants present at these sites are being delineated at this time. Conclusive site information, the effects on storm water, and contaminants of concern will be available when site studies are completed. Construction sites at the WFF are generally less than 1 acre (0.4 hectares) in size. In the event that construction projects exceed 10,000 square feet (930 square meters) in size, appropriate storm water guidelines will be followed. Best management practices, state and local sediment and erosion control measures, as well as other necessary narrative descriptions will be provided. These plans will be submitted to appropriate agencies when required for review.

The WFF Environmental Office monitors active and planned facility and mission projects for potential impacts to the environment. Potential impact to the storm water network is included in this monitoring process. Plans for construction and renovation are reviewed in the early planning stages to verify that appropriate storm water management procedures are planned and implemented. Should a proposed project impact the storm water network, the WFF will take all necessary measures to ensure that it meets applicable storm water requirements and regulations.

## **2.0 PRACTICES IMPLEMENTED TO REDUCE RUNOFF**

The overall SWPPP emphasizes source control of pollutant runoff as opposed to “end of pipe” control measures and devices. To reduce the potential for pollutant release at the facility, annual classroom and on-the-job training addresses materials management and emergency procedures. The potential for releases is reduced through source control

measures such as sediment and erosion control, prudent housekeeping measures, periodic training, inspections, maintenance, and preventive measures.

## **2.1 Good Housekeeping and Preventive Measures**

Source control measures have been implemented for the industrial activities subject to storm water.

### **2.1.1 Airport Fueling Operations**

Source controls for these operations include:

1. Daily fuel truck inspections to check tanker integrity and mechanical functions.
2. Monthly inspection/maintenance of oil/water separators at fuel farm and wash rack.
3. Fueling and wash rack areas maintained in a clean, orderly manner.
4. Monitoring of fueling operations by trained personnel.

### **2.1.2 Airport Runways**

Runways are a secondary source of pollutants and are maintained to reduce runoff potential. Maintenance activities include:

1. Daily inspections by the Fire Department.
2. Sweeping and vacuuming surfaces as needed.
3. Maintenance of grass buffer zones between runways and storm water catch basins to intercept any loose debris and sediment not removed by airport maintenance.

### **2.1.3 Waste Collection**

Major solid waste streams on WFF include refuse, hazardous wastes, used oil, and recyclables. To ensure proper handling, the Environmental Office performs Annual RCRA Generator training for Satellite Accumulation Area points of contact. To encourage proper disposal, the Environmental Office provides collection, transportation, and storage of used or discarded hazardous wastes prior to final disposal through a permitted treatment, storage, and disposal facility. Training, coupled with this customer service, helps reduce the potential for releases from these waste streams. The WFF routinely provides hazardous wastes management and disposal services for all the WFF partners at the Main Base and Wallops Island.

### **2.1.4 Fueling Operations**

Trained personnel monitor fueling operations for facility heating and emergency generator equipment. Plant operations or logistics personnel monitor on-site fuel loading to ensure that proper procedures are followed. Tanks containing greater than 1,100 gallons

(4,164 liters) of fuel are inspected daily for integrity. Aboveground storage tanks are surrounded by dikes and inspected periodically for precipitation accumulation or product release. If uncontrolled spills or leaks of hazardous substances occur, the Wallops Fire Department must be notified immediately. The Environmental Office must notify DEQ within 2 hours if greater than 25 gallons (94.6 liters) of fuel spill onto the ground or cause a sheen on surface waters. Once the spill is contained, an incident report is submitted by the Environmental Office to DEQ.

### 2.1.5 Drum Storage

The Environmental Office has actively sought to reduce the pollution potential from outdoor drum storage and loading activities by moving the majority of these activities under shelter.

## 2.2 Spill Prevention and Response Procedures

The current ICP delineates the spill prevention and cleanup procedures. These procedures would be utilized in the event of a spill. Contractor personnel provide on-site fire, emergency, and hazardous material (HazMat) response services to the WFF. Spill response kits are located in major industrial areas such as satellite accumulation areas, 90-day hazardous waste storage buildings, vehicle maintenance garages, and airport hangars.

The Environmental Office maintains records of spills, leaks, and releases to the environment of hazardous or toxic pollutants. Spills in reportable quantities are reported to the appropriate agencies. Reportable quantity spills and leaks are remediated as effectively and expeditiously as possible, and in accordance with applicable rules and regulations. Listed in Table 7 are spills and leaks of reportable quantity for the last 3 years.

<b>TABLE 7 SPILLS AND LEAKS HISTORY</b>			
<b>Date</b>	<b>Location</b>	<b>Substance</b>	<b>Quantity</b>
06/07/1997	N-200, Satan Antenna	Hydraulic Fluid	55 gallons
10/23/1997	F-10, Machine Shop	Propylene Glycol	30 gallons
07/10/1998	Wallops Island Launch Pad #5	Tetrahydrodimethyl cyclopentadiene dimer	140 gallons
10/27/1998	Runways 17-35 and 04-22	JP-5 Jet fuel	500 gallons
09/12/1999	N-200, Satan Antenna	Hydraulic Fluid	50 gallons
10/22/1999	X-76 AST	Number 2 Fuel Oil	20 gallons
08/30/2000	U-48 AST	Number 2 Fuel Oil	310 gallons

## 2.3 Sediment and Erosion Control

The WFF is located on the Atlantic Coastal Plain of Virginia. The site occupies an area with elevations ranging from sea level to approximately 40 feet (12.2 meters) above sea

level. Buildings are located on flat or gently sloping grades (0-2 percent). The WFF perimeters have occasional incised stream beds or embankments on the tidal fringe. Most of the site, however, is not highly erodible. Silviculture activities are practiced in locations where tall timber may obstruct either runway flight paths or antennae reception, with certain locations having steep, highly erodible soils. In the event that timber is cut in incised areas, sediment and erosion control procedures will be implemented. Procedures for erosion reduction include avoidance of root grubbing and the placement of straw bales and silt fencing in areas subject to erosion. Silt fences are also constructed to prevent sedimentation of wetland areas. Sediment and erosion control measures are implemented based upon drainage areas and slope. These plans are developed on an as-needed, project-specific basis.

Construction projects at the WFF also apply sediment and erosion control on a case by case basis. Potential construction areas denuding greater than 10,000 square feet (930 square meters), sites with topographic relief, or sites adjacent to storm water catch basins are required to develop sediment and erosion control procedures during the planning stage. These procedures follow guidelines shown in the Virginia Erosion and Sediment Control Handbook, Fourth Edition, 1998. While no facility-wide plan is available, best management practices are followed on individual projects. The WFF erosion and sediment control practices are consistent with the DEQ Erosion and Sediment Control Program of the Virginia Coastal Resources Management Program.

## **2.4 Storm Water Pollution Prevention Team**

The WFF has established a Storm Water Pollution Prevention Team (SWPP Team) comprised of individuals from various NASA and partner offices. The team is tasked with ensuring the development, implementation, maintenance, and revision of the facility's SWPPP. The SWPP Team will identify and incorporate into the plan any potential sources of pollution that affect the quality of storm water discharges from the facility. The pollution prevention team is responsible for the following:

- Implementing all VPDES and pollution prevention plans requirements.
- Defining and agreeing upon an appropriate set of goals for the facility's storm water management program.
- Being aware of any changes in WFF or partner operations in order to determine changes (if needed) in the SWPPP.
- Assigning both the Comprehensive Site Compliance Evaluation detailed in Section 3.1 of this Plan, and the review of the Fire Department's Incident Reports.
- Identifying pollutant sources and risks. Making decisions on appropriate best management practices (BMPs), and directing the actual implementation of the BMPs and regular evaluations to measure the effectiveness of the plan.
- Developing, documenting, and implementing improved management practices to reduce the potential for contamination of storm water discharges.

The SWPP Team will meet at least twice a year to discuss the goals of the SWPPP, review BMPs progress, address comments and suggestions received from others, and determine if changes are necessary. The team will revise the SWPPP, including the BMPs implementation schedule, as necessary.

An Environmental Engineer and a Program Support Specialist from the Environmental Office are the co-coordinators of the SWPP Team. They are facilitators for spill prevention education and the timely cleanup of spills at the WFF. An on-site Fire Department is available for first response during spill incidents. The Facilities Management Branch provides personnel for the remediation of minor storage tank leaks and wastewater treatment plant releases. The facility conducts annual training in the use of the ICP. Fire Department personnel are certified in Hazardous Material Awareness and/or Operations through the Commonwealth of Virginia Department of Fire Programs. All other personnel responsible for hazardous waste cleanup are certified through Hazardous Waste Operations and Emergency Response (HAZWOPER) training as required under the Occupational Safety and Health Act (OSHA). Listed in Table 8 are the members of the SWPP Team, with offices and associated responsibilities identified.

<b>TABLE 8</b>			
<b>STORM WATER POLLUTION PREVENTION TEAM</b>			
<b>Team Member</b>	<b>Code</b>	<b>Phone</b>	<b>Responsibility</b>
Fire Department Fire Chief	803	824 – 1333	HAZMAT First Responder
Environmental Group Leader	205.2	824 – 1103	The WFF Environmental Coordinator (Primary)
Program Support Specialist	205.2	824 – 2234	The WFF Clean Water Act Compliance
Contractor Support Environmental Manager	205.2	824 – 1152	Environmental Contractor Clean Water Act Compliance
Facilities Management Specialist	228	824 – 1191	Wastewater Treatment Plant Manager
Laboratory Support Services	803	824 – 2030	VPDES Permit Compliance and Analytical Support
U. S. Navy Ecologist	NA	824 – 2058	Point of Contact to WFF for Environmental Compliance
NOAA Chief of the Systems Support Branch	NA	824 – 7375	Point of Contact to WFF for Environmental Compliance
U.S. Coast Guard Engineering	NA	336 – 2861	Coast Guard Housing Management
Marine Science Consortium, Inc. Senior Boat Captain	NA	824 – 5636	Operation and Maintenance of Marine Vessels
Virginia Space Flight Center Spaceport Manager	NA	824 – 2335	Point of Contact to WFF. VSFC Environmental Compliance

## 2.5 Summary of Potential Pollutant Sources and Control Measures

The WFF has implemented the following control measures, listed in Table 9, to reduce the pollutant release risks associated with its industrial activities.

<b>TABLE 9</b>		
<b>CURRENT CONTROL MEASURES FOR POTENTIAL POLLUTANT SOURCES</b>		
<b>SIC Code</b>	<b>Industrial Activity</b>	<b>Control Measures</b>
4581	Transportation	Warehouse loading/unloading is under roof
		Fuel loading/unloading conducted by trained personnel
		Fuel oil AST's are diked
		Discontinued use of toxic materials/ practices on runway during training exercises
		Monitor storm water discharge under VPDES permit
		Lining of storm drain piping with polymer coating
		Leak detection systems at fuel farm and gas station
		Fuel storage and incidents covered by ICP
		Oil/water separator at storm drain serving fuel farm
		On-site emergency response HazMat Teams
		Oil/water separator at airplane wash rack
		Diversion valve at wash rack
3460	Space Vehicles	Under roof (X-30)
	Parts Manufacturing	Reduced toxicity of materials (paints at X-30)
		Good housekeeping practices
	Open Burn/Open Detonation Facility	Restricted to OB/OD of unflightworthy solid rocket motors and waste solid rocket propellant
		Inspected before and after operations
		Constructed of vertical steel cylinders with caps and concrete bottoms
	Scrapyard at N-222	No conveyance
		Restricted materials storage
		Good housekeeping practices
	Construction	Best Management Practices
		Soil Erosion Sediment Control
3471	Electroplating	Effluent testing
9661	Space Technology/ Research	Laminar flow
		No conveyances

The WFF's source control pollution prevention practices appear successful, since storm water sampling results indicate no significant pollutants are reaching surface waters (February 2000). No structural pollution control or treatment measures exist at conveyance points, other than the oil/water separators described. Ground maintenance personnel periodically clean storm water catch basins of debris.

### **3.0 MEASURES TO ENSURE COMPLIANCE WITH VPDES PERMIT**

The WFF has initiated specific measures to facilitate compliance with the VPDES permit. These measures include an annual, comprehensive site compliance evaluation and employee training as described in the following sections. The WFF will continue outfall sampling and reporting as specified in the VPDES permit.

#### **3.1 Comprehensive Site Compliance Evaluation**

The WFF conducts annual inspections of industrial areas located in the storm water drainage area (see Figure 3). The inspection criteria are fully detailed in the ICP. Inspections are completed by qualified personnel and duly documented in a compliance evaluation report. Features inspected include storm water catch basins within industrial and storage locations, storm water outfalls associated with potential pollutant sources, oil/water separator functions, potential pollutant storage location and risk identification, sediment and erosion control measures, and spill response equipment. The SWPP Team designates the inspectors.

Facilities personnel inspect storm water catch basins and outfalls. These units are inspected for flow, debris, integrity of the conveyance, and overall operation. Catch basins are located in fuel storage and industrial locations.

Facility maintenance personnel shall inspect oil/water separators. Inspectors check equipment function and mechanical integrity. During the mechanical inspection, the separator is checked for flow and quantity of oil or fuel present. The aircraft wash rack diversion valves are checked for operation and valve function.

The Environmental Office inspects potential pollutant storage locations. Drum storage and integrity of storage containers are observed and noted. Potential risks to the storm water conveyances are noted and alternatives assessed. Locations are inspected for unreported containment failures.

Sediment and erosion control features are inspected in accordance with construction practices. Silt fence toe-in and placement, straw bale placement, and buffer zones are inspected. Facility maintenance inspectors evaluate sediment and erosion control practices, and inspect structures.

Spill response equipment is inspected for contents, condition, and availability. This equipment is maintained in the Fire Department Building B-129 and the Hazardous Waste Storage Building B-29. The Fire Department and the Environmental Office personnel, respectively, conduct inspections.

Compliance evaluation reports are submitted to the Chemical Laboratory (Building F-160) and filed with the Storm Water Management Plan. Any necessary revisions to the SWPPP will be made within 14 days of the compliance report. Corrections will be implemented no later than 90 days following an inspection.

### 3.2 Employee Training

The WFF maintains a staff trained in the use of the ICP, spill response, materials management practices, and HAZWOPER procedures. Table 10 lists the training events, number of personnel attending, and the frequency of event.

<b>TABLE 10 TRAINING EVENTS AND FREQUENCY OF ATTENDANCE</b>		
<b># of Attendees</b>	<b>Training Program</b>	<b>Frequency</b>
26	HAZMAT I	Every 5 years
26	HAZMAT II	Every 5 years
2	HAZMAT III	Every 5 years
2	EPA Spill Response & Boom Recovery	1 time
16	OSHA HAZWOPER Refresher	Annual
20	AST Pollution Prevention	Every 3 years
80	RCRA Update	Annual
20	RCRA Loading Dock Training	Ongoing (at least annual)
32	Hazardous Materials Awareness	1 time
32	Hazardous Materials Operation	Every 5 years
32	Fire Department Continuing Education	Monthly

A training program shall be developed specifically for storm water management and pollution prevention. Training shall be conducted every 2 years and will cover spill response, good housekeeping measures, and materials management. Facilities maintenance, environmental, logistics, aircraft operations, fire department, radar maintenance, and personnel involved in the maintenance and use of the storage tanks will attend this training.

## APPENDIX A

DISCHARGE MONITORING REPORT (DMR)  
FOR PERMIT #VA0024457